ENVIROLOGIX

QuickTox™ Kit for QuickScan Zearalenone

Catalog Number AQ 112 BG *Part #10429*

Highlights:

- *Quantitative results in only 5 minutes*
- *Read strips wet – no drying necessary*
- *Simple protocol*
- *No incubation equipment needed*

Contents of Kit:

- *50 QuickTox Strips packed in a moisture-resistant canister*
- *50 reaction vials*
- *100 pipette tips*
- *DB4 Buffer*
- *Available in 50-strip individual kit format or bulk packaging*

Items Not Provided:

- *Orbital/rotary shaker*
- *Plastic sample cups with lids**
- *Solvent (50% ethanol)**
- *20 mesh screen*
- *Graduated cylinder**
- *Pipette to deliver 100 µL**
- *Tubes for additional dilution of high samples (optional)*
- *Timer*
- *Scissors*
- *QuickScan System**

**Available as accessories – see list on Page 3*

Correct 20 mesh grind for corn

Intended Use

The QuickTox Kit for QuickScan Zearalenone is designed to quickly extract and screen corn for the presence of zearalenone. The QuickTox Kit is designed to provide quantitative results in corn grain for zearalenone residues ranging from 50 ppb to 520 ppb in the standard assay. The limit of detection is 50 ppb.

How the Test Works

A composite corn sample is first collected, then extracted to solubilize any zearalenone present. Each sample should be ground to a fineness of 20 mesh and extracted with solvent. This extract is further diluted for testing with the QuickTox Kit.

Each QuickTox Strip has an absorbent pad at each end. The protective tape with the arrow indicates which end of the strip to insert into the reaction vial. The sample extract travels up the membrane strip and is absorbed into the larger pad at the top of the strip. At five minutes, the strip is cut off at the top of the arrow tape, the bottom pads are discarded, and the strip is inserted into the QuickScan reader to obtain quantitative results.

Preparation of the Sample

Please note: sample extract should be tested shortly after dilution with Buffer (Step 8). Make sure strips and Buffer are at room temperature and ready for use before the dilution step.

Determine number and size of sub-samples

1. Collect a composite corn sample according to your own sampling plan or USDA/GIPSA guidelines. Consult USDA/GIPSA reference documents such as **www.gipsa.usda.gov/publications/fgis/handbooks/gihbk1_insphb.html** to help design a plan that fits your needs.
2. Grind samples using a mill which provides a sample that passes through a 20 mesh sieve. Mix ground material thoroughly before sub-sampling.

Extract corn sample

3. Weigh 20 to 50 grams of milled sample into a disposable sample cup with lid and add two volumes of 50% ethanol (2 mL per gram of sample, i.e. 20 grams, add 40 mL). To purchase or prepare a 50% ethanol solvent, see Precautions & Notes.
4. Cap sample cup tightly and place on shaker for 1 minute. Shaker should be operated at the highest speed. Alternately, samples may be shaken by hand for 1½ to 2 minutes. Samples that are not thoroughly mixed may adversely affect test results due to incomplete extraction.
5. Extract will immediately begin to separate into 2 layers (a more finely ground beginning sample may take a few minutes to settle). The top (yellowish) layer containing the zearalenone residues will be used in testing.

Measure solvent, add to ground sample

Shake mechanically or by hand

Add Buffer to vial first, then add extract; mix well with pipette tip

Place strip in vial

Wait 5 minutes for results

Dilute corn extract

6. Using a calibrated pipette with a **new tip**, place 100 microliters (100 µL) of DB4 Buffer into a reaction vial. Take care not to contaminate the Buffer—use a new tip for each test and keep buffer covered when not in use.
7. With **another new** pipette tip, remove 100 µL from the top (yellowish) layer of extract, avoiding particulates. Add sample extract to reaction vial containing Buffer.
8. **Mix Buffer and sample extract thoroughly** by stirring or drawing the liquids up and down in the pipette tip until the mixture is uniformly yellow.

NOTE: Samples that are not thoroughly mixed and/or accurately pipetted will adversely affect test results. After diluting the sample, the final volume in the reaction vial should be 200 µL. Do not reuse diluted samples. Use a new reaction vial for each sample. Use two pipette tips (one for Buffer, one for extract) for each sample.

How to Run the QuickTox Strip Test

1. Allow refrigerated canisters to come to room temperature before opening. Remove the QuickTox Strips to be used. Avoid bending the strips. Reseal the canister immediately. For optimal results, the assay must be run at 20-25°C
2. Place the strip into the reaction vial containing the Buffer and sample extract. The arrow tape on the end of the strip should point into the reaction vial.
3. The sample extract will travel up the strip (flow may not be visible immediately- this is expected and normal). Reaction vials will stand on their own.
4. Allow the strip to develop for 5 minutes. Immediately cut off and discard the bottom section of the strip covered by the arrow tape. Insert strip into the QuickScan reader for quantitation.

Use of the QuickScan System

Detailed instructions for use of the QuickScan System are supplied with each unit, and can also be found at envirologix.com/quickscan. The lot-specific Multi-Matrix Barcode Card (MMBC) must be scanned into the system prior to testing. In summary, a strip is inserted into the reader and the strips are read by touching or clicking on the "Read Test" area of the screen. Results are then recorded in an electronic worksheet, allowing each user to report and track data easily.

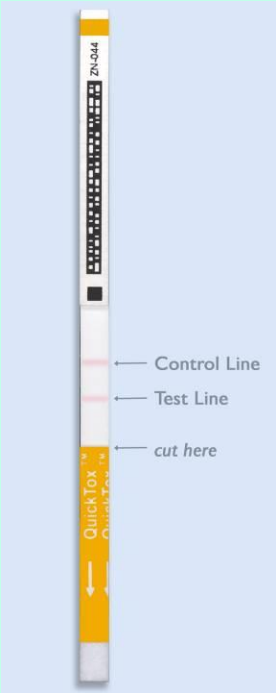
Results are reported in the range of 50 ppb to 520 ppb . Results less than 50 ppb are reported as "<LOD" (less than Limit of Detection) and results greater than 520 ppb are reported as ">520 ppb."

Kit Storage

This QuickTox Kit should be stored refrigerated. Note the shelf life on the kit box. Prolonged exposure to high temperatures may adversely affect the test results. Do not open the desiccated canister until ready to use the strips.

Precautions and Notes

- This product is currently not applicable for use in testing any other crops.
- Pipettes lose calibration accuracy over time. Calibrate or replace pipettes at least annually.
- The assay must be performed at ambient temperatures of 20-25°C
- This assay is calibrated against reference samples supplied by Trilogy Analytical Laboratory, Washington, MO, and other vendors and associated HPLC data.



Cut strip and place in QuickScan reader immediately —no drying step!

- As with all screening tests, it is recommended that results be confirmed by an alternate method when necessary.
- The assay has been optimized for use with the protocol provided in the kit. Deviation from this protocol may invalidate the results of the test. Proper and thorough mixing, along with accurate pipetting, are essential to accurate results.
- The results generated through the proper use of this diagnostic tool reflect the condition of the working sample directly tested. Extrapolation as to the condition of the originating lot, from which the working sample was derived, should be based on sound sampling procedures and statistical calculations which address random sampling effects, non-random seed lot sampling effects and assay system uncertainty. A negative result obtained when properly testing the working sample does not necessarily mean the originating lot is entirely negative for the analyte or protein in question.
- Strips should be read wet promptly at five minutes.
- Protect all components from hot or cold extremes of temperature when not in use. Do not leave in direct sunlight or in vehicle.
- For convenience, accessories and solvent can be ordered from EnviroLogix (see list, below). Purchase 50% ethanol, or prepare using 100% ethanol as follows: <u>50% Ethanol Preparation Instructions</u>: For 100 mL, measure 50 mL 100% ethanol [reagent grade or better]; pour into suitable container with cap. Add 50 mL deionized or distilled water. Cap tightly and shake to mix. Use care when uncapping.
- For preparation of 50% ethanol from a 95% ethanol stock , measure 52.6 ml of 95% ethanol (reagent grade or better), pour into suitable container with cap. Add 47.4 ml deionized or distilled water. Cap tightly and shake to mix. Use care when uncapping.

- **IMPORTANT:** Ethanol is flammable and toxic. Avoid inhaling vapors or contact with the skin, eyes, or clothing. Wear personal protective equipment including safety glasses, nitrile gloves (**not latex**), a vapor mask and a lab coat when handling. Keep containers tightly closed and away from heat, sparks and open flame. Observe any applicable regulations when disposing of samples and kit reagents.
- Liquids containing zearalenone should be treated by the addition of bleach (add a minimum of 10% of the total volume for 10 minutes). All labware should be soaked for 1 hour or more in a 30% solution of household bleach.

Accessories:

Available through EnviroLogix:	*Catalog No.*	*Part #*
▪ QuickScan™ System	ACC 331	12721
▪ Sample cups with lids (500/case) *for samples up to 30 g; larger samples require different mixing vessels*	ACC 012-CS	10167
▪ Graduated cylinder (100 mL)	ACC 068	11207
▪ MiniPet pipette 100 µL (one/location free)	ACC 041	11202
▪ 50% Ethanol	ACC E26902-1X4 (1 bottle, 4L)	11156

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License

EnviroLogix has developed this kit using proprietary reagents.